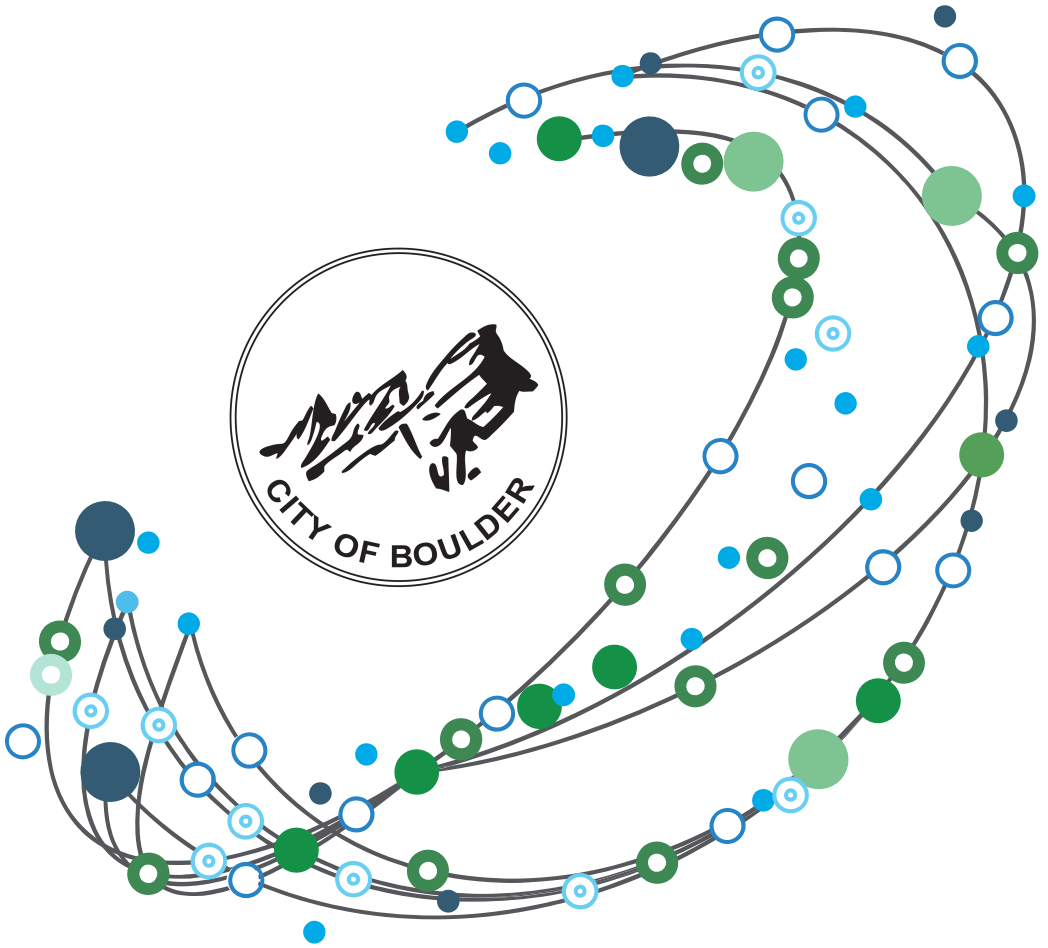
City of Boulder Innovation and Analytics Program

Public Engagement through Data

Open Data Strategy



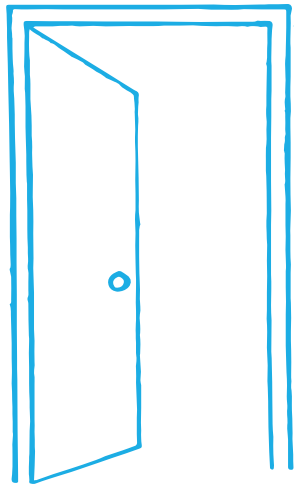
Contents

Current State Summary

Background of the Open Data Program

- What is Open Data?
  - Open data is data that is free of charge and accessible for anyone to use, reuse, and redistribute

- What is it good for?
  - Increasing efficiency
  - Improving internal data sharing
  - Creating an internal culture of performance management and continuous improvement
  - Driving civic engagement
  - Spur innovation
  - Enabling transparency and accountability with the public

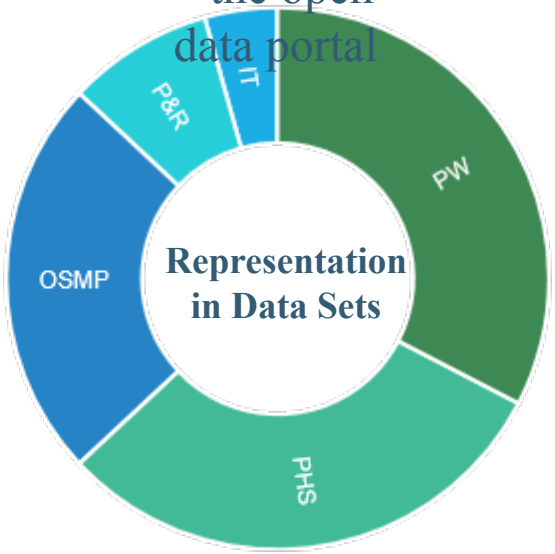


Current State Summary

The City of Boulder currently has **46+** open datasets on our web portal bouldercolorado.gov/open-data

More than **75%** of our data has a shapefile associated with it, most of our data is mapping data

25% of departments have data on the open data portal



20% of our datasets are updated at least monthly,

9% is updated daily

10% of departments have gone through comprehensive data inventorying

Last quarter, the open data site had **1,270** unique visitors and **9,329** page views

Data is currently available in **6** different file formats

Our portal has **2** videos informing users about the data and our goals for accountability and transparency

45 people attended our community engagement sessions to provide feedback on the portal

Key Needs and Gaps

Based on our engagement roadshow we have identified the following needs and gaps of the current open data program:

Utility

- Lack of acclimation public and city staff as to function and use of open data
- Need to increase ease of understanding/use of data and build approach to engaging between public and city re: data
- Ways to inspire people around use of open data

Visuals/Navigation

- Enhanced visuals and navigation to provide hints and previews; Suggestions of problems that could be solved
- A useful site index to help acclimate users to data
- Tools and buttons that are easily accessible and intuitive

Big Picture/Story Telling

- Strong connection between open data and dashboard
- Rich descriptions of the data sets/additional tagging for search ability
- Link or access to other open data (ex. Louisville)

Data

- More diverse representation in data sets to encourage use by many different city constituencies
- An acquisition model that is organic and easy to maintain
- Ownership of all of the data generated by the City through vendor and partner relationships

Site Management

- Strategic timing of data release to build excitement
- A sustainable maintenance model
- Defined community channels for communication/announcements

Challenges to Date and Lessons Learned

The open data program has been operational for a few years, lessons learned to date can be applied forward to implementation of this next version of the strategy.

Culture Change is Hard

- Acclimating departments to the concept, rationale and value of open data has been slow and often times and upward battle
- Departments are protective of their data and see themselves as owners, as opposed to the information belonging to the tax payers and Boulder community

Inventorying is Cumbersome

- Because of the high number of systems in the city, inventorying them is time consuming and never a top priority for depts.
- We were simultaneously developing the toolkit for inventorying and inventorying, so guidance was evolving

The City Doesn't Always Own its Data

- Boulder enters into many consulting and partnership arrangements that involve generation, gathering and analysis of City data, we do not currently have standard contract language that says the city a priori owns the information generated from these arrangements, this means that some data that could be opened isn't ours

Without a Policy, Compelling Depts. is Hard

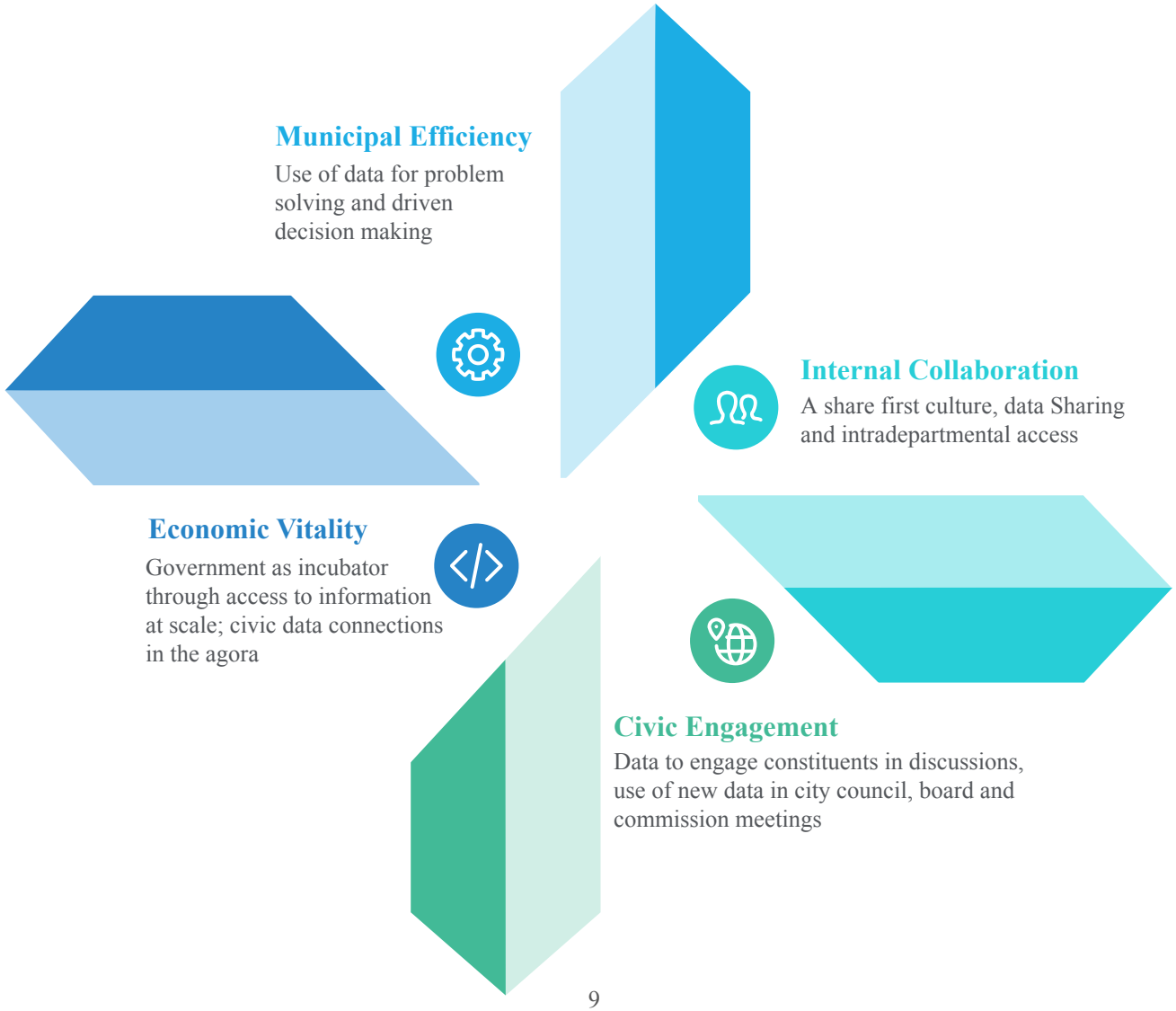
- Without a formal data policy, the City does not have the appropriate hook to compel departments to open their information. A policy that articulates which data we should be opening and how, as well as reinforcing the fact that protected, confidential and protected information wont be opened would go a long way to helping clarify expectations and increase participation

Future State Vision

Mission and Vision

To create a data oriented culture by fostering data driven dialog within city departments and between the city and our community.

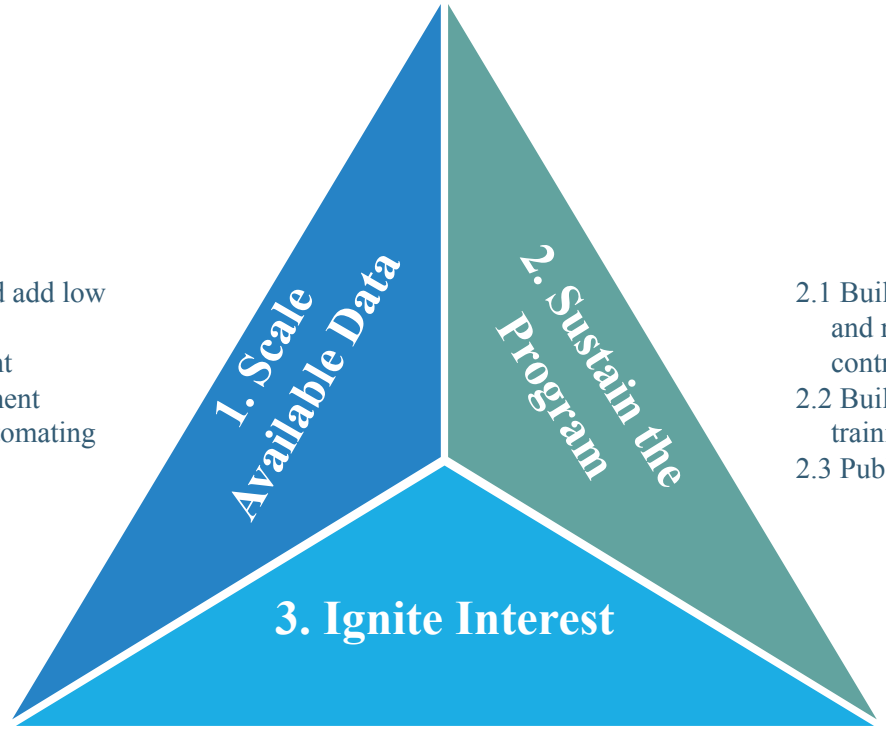
Our vision is to use data for accretive municipal efficiency, internal collaboration, civic engagement and economic vitality.



Program Goals and Strategies

Based on feedback from the core project team, community members, department and division leaders and city councilmembers, 3 goals and 9 strategies were identified for the next iteration of the community dashboard

1.1 Turn existing public facing data into open data and add low hanging fruit data sets
1.2 Add to data index through public request fulfilment
1.3 Build scale of data through department by department inventorying and structured program processes; automating data sets where possible



2.1 Build program on-going operating model with delivery model, roles and responsibilities, oversight and governance, contracts/procurement
2.2 Build institutional supports through a user tool kit and open data training
2.3 Publish and build awareness about open data policy

3.1 Build communication and engagement plans
3.2 Ignite excitement about data through strategic releases and targeted awareness campaigns
3.3 Deliver value through open data with case studies that have visible impacts to departments or other constituencies

Detailed Strategies and Tactics

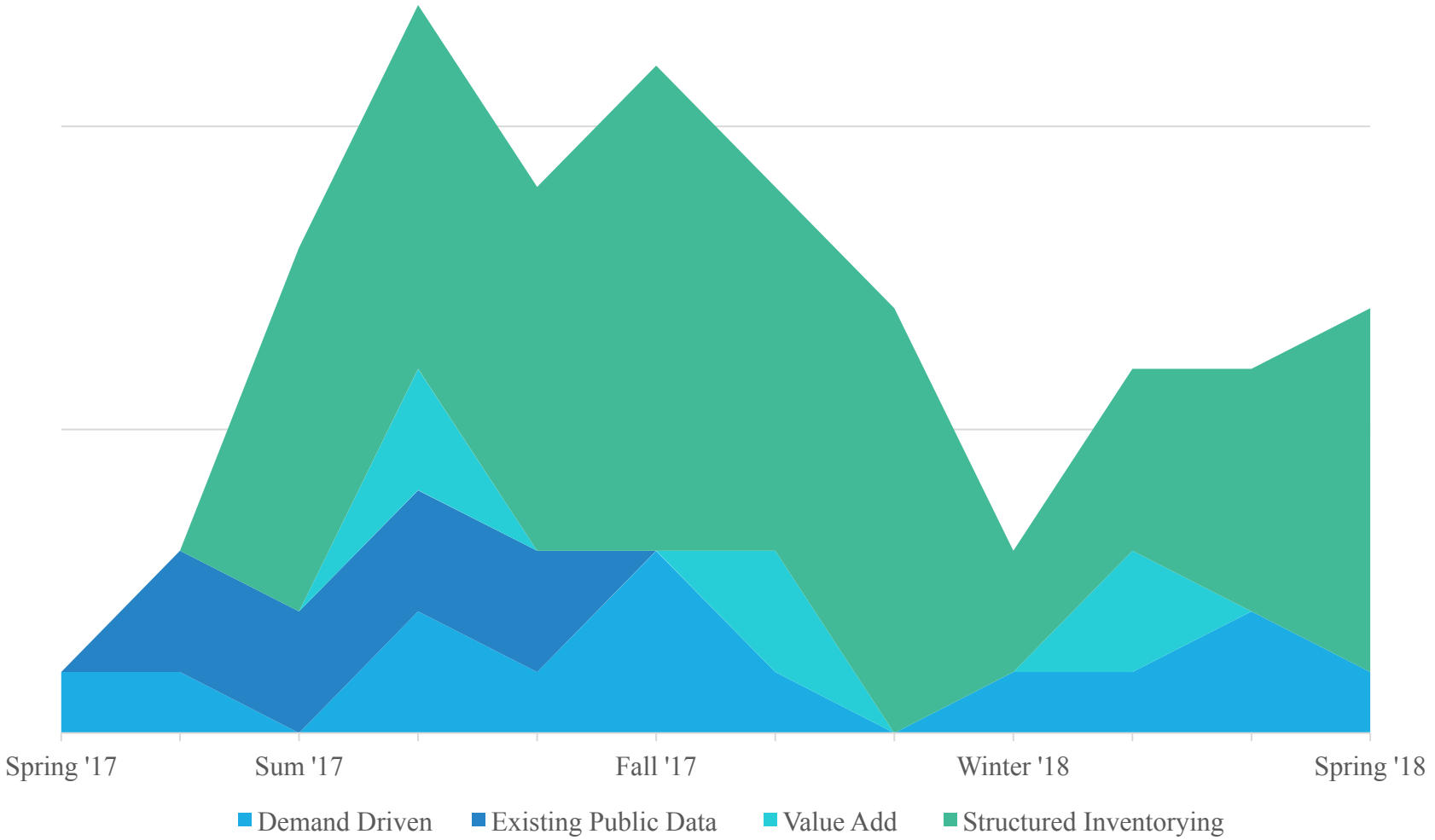
Program Tactics: 1. Scale the Program

A key strategy for the program is to scale the amount of data available and incidents of its use, improving traction and value.

Strategy	Supporting Tactics	Dependencies/Key Questions
1.1 Turn existing public facing data into open data and add low hanging fruit data sets	1. Conduct a web scan to identify currently public data, reports, surveys and create list of quick wins for data that can be easily opened up 2. Identify common internally shared or externally published information that could be quickly moved into open data 3. Work with stakeholders to enable understanding of process and create comfort about the limited amount of change required 4. Conduct publication process	• Need to connect data to source dept. website so that we're creating appropriate connections for constituents
1.2 Add to data index through public request fulfilment	1. Develop approach and tool for tracking patterns of requests that come in or areas of high interest 2. Develop process to use CORA requests to identify frequently requested information and areas of information 3. Work with departments to identify data sets that are regularly requested from other departments 4. Conduct publishing process on an established cadence 5. Develop SLAs to help departments understand expectations, timing and process for opening data when requested	• Communications plan • Internal communications/Response plan (what do we do when a lot of requests come back) • High quality information regarding CORA requests
1.3 Build scale of data through department by department inventorying and structured program processes; automating data sets where possible	1. Develop and document lessons learned from pilot inventory efforts 2. Identify department inventory order based on a defined set of criteria: willingness, public interest in data, availability of data sets/system dependencies 3. Build a heat map indicating prioritized order (see working draft) 4. Build master list and work plan 5. Work with depts. to establish inventory project charter, timing, key point of contact, and desired outputs 6. Conduct inventorying 7. Publish available data sets 8. Document lessons learned and update process according to improvement opportunities identified	• Define "department" • Took kit and website built out • Resourcing to conduct multiple inventory efforts at once or should they be sequential?

Inventorying Approach

In order to scale our available open data, we will take a 4 pronged approach with both programmatic and opportunistic tactics. The chart below provides an approximation of the effect of these 4 methods on our overall open data inventory.



- **Demand Driven**—Resident Requests, CORA related inquiries, city council
- **Existing Public Data**—Data sets already available online, surveys
- **Value Add**—High volume intra-departmental requests, intradepartmental research data
- **Structured Inventorying**—Department by Department system, dataset, and data review and publication

Data Availability Heat Map (working version)

Dept.	# of Systems in Apps Inventory*	Level of Non-Protected data (limited PII etc.)	Level of Currently Available Public Reports	Level of Public Interest in Data	Departmental Interest in Open Data	Upcoming Catalyzing Opportunity	System Stability **	Total Score	Notes
Arts									bridge, garage art
City Attorney's Office									
City Clerk									Emails
City Council									Existing open info.
City Manager's Office									
Communications									
Community Vitality									parking sys
Energy Strategy/Util									June decision
Finance									budget season
Fire									new systems launch
Human Resources									
Human Services									performance contracting
Information Technology									
Library									hackathon
Municipal Court									
OSMP									citizen science launch
Parks and Recreation									summer season
Planning, Housing , Sus.									new dir, climate goals
Police									Hilliard Heinz, PDI
Public Works									

** Low stability indicates upcoming system replacement or upgrade

externally hosted cloud solutions

Very Low — Very High

Program Tactics: 2. Sustain the Program

Building a model which is workable given available resourcing and constraints will be essential.

Strategy	Supporting Tactics	Dependencies/Key Questions
2.1 Build program on-going operating model with delivery model, roles and responsibilities, oversight and governance, platform delivery, contracts/procurement	1. Define processes taxonomy necessary to support open data program including frequency of tasks, complexity, hand-offs and special rights or experience required 2. Evaluate current technology choices supporting program for sustainability, institutional knowledge and industry leading practices 3. Identify roles necessary for ongoing delivery of the open data program, both program and dept/data owner resources; 4. Identify champions to build traction for the program within departments; support identification of departmental data stewards, based on roles defined in 2.1.1 5. Design governance model, including decision rights, decision owners and escalation, oversight structure 6. Evaluate platform options for delivery of open data 7. Develop an operating model 8. Identify procurement and contracting supports necessary to deliver open data and develop a city wide strategy	• What's the structure of the Open Data Team on an ongoing basis • How sustainable is the current technology delivery model? • How to implement new contract language? What to do about existing city contracts? • What is overlap with Dashboard stewards? • Are we on the right platform? Do we want a separate platform for GIS data?
2.2 Build institutional supports through a steward tool kit and open data training	1. Finalize open data handbook incorporated processes and other elements from 2.1 as appropriate 2. Build and publish templates and webforms to support handbook/operational processes 3. Develop a training strategy, identify resources and develop implementation plan for teaching city employees about open data 4. Launch training strategy and conduct trainings	• What existing training modes can we use to acclimate people to open data and tag onto for training? • Can we use a multi-media approach/videos to teach staff about open data
2.3 Publish and build awareness about open data policy	1. Review final draft of policy with city leaders to build consensus and understanding of policy, link to communications plan in 3.1 2. Obtain signature on policy 3. Publish policy to city policy pages on Work@ 4. Incorporate teaching about policy in training plan (2.2)	• What are the top 3 compelling reasons to have a policy

Program Tactics: 3. Ignite Interest

Open data is useful if it adds value to the work of the city and to the opportunities available in the community, we aim to achieve both.

Strategy	Supporting Tactics	Dependencies/Key Questions
3.1 Build communication and engagement plans	1. Develop an internal engagement plan to garner traction with departments 2. Build an external communications plan focused on drawing attention to the platform 3. Update stories and context surrounding published data sets to encourage use 4. Identify tools to deliver help and hints regarding file formats, use, and suggested projects/areas for exploration 5. Develop social media strategy and engagement approach including twitter handle 6. Develop compelling messages to incorporate into communications plan 7. Develop push communications asking for requests for data from the public (connecting to 1.1)	• What are upcoming big communication milestones to attach our communications to • Can we have a twitter feed scrolling on the website
3.2 Ignite excitement about data through strategic releases and targeted awareness campaigns	1. Develop release schedule for new data sets considering strategic milestones such as large city events 2. Identify possible city council public hearings, or areas of focus to which releases can be anchored 3. Develop campaigns to surround releases consistent with plans developed in 3.1	• How soon would we need to identify the data sets
3.3 Deliver value through open data with case studies that have visible impacts to departments or other constituencies	1. Cultivate stories regarding open data wins, uses, help from Data Stewards, and other innovation program efforts; publish vignettes on portal and publicize widely 2. Cultivate suggestive use cases and examples for apps, research or tools created with data 3. Identify opportunities to develop business cases with departmental data, and open data acclimating them to the concept of using data to evaluate and measure policy impacts 4. Build opportunities for city employees to better understand data use in daily work (linked to 2.2) (Gov Ex Resource)	• Does this have to be business cases with open data only? • How proactive to be about business cases, seek them out of have them come to us

Implementation Plan

Necessary Resources

Development and implementation of the strategy will be time and resource intensive, requiring collaboration across many groups.

Strategy	Human Resources	Other Resources/Supports
1.0 Scale Available Data	1. Open Data Team Members 2. Departmental participants and data owners 3. Technical resources who can evaluate/inventory	• Possible investment in a new platform/multiple platforms
2.0 Sustain the program	1. Open Data Team Members 2. Departmental participants and data owners	
3 Ignite Interest	1. Open Data Team Members 2. Departmental participants and data owners 3. Resources to conduct/build business cases 4. Technical resources who can evaluate/inventory 5. Communication resources	• Social media tools/twitter handle

Summary Timeline

The summary timeline for implementing the 9 strategies is in the table below, while the detailed implementation plan is available in the imbedded file.

	Sprint 1: Delivery Model			Sprint 2: Awareness			Sprint 3: Value Delivery		
Month	1	2	3	4	5	6	7	8	9
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0. Conduct On-Going Open Data Management									
Manage ongoing dashboard activities									
1. Scale the Program									
1.1 Turn existing public facing data into open data and add low hanging fruit data sets									
1.2 Add to data index through public request fulfilment									
1.3 Build scale of data through department by department inventorying and structured program processes; automating data sets where possible									
2. Sustain the Program									
2.1 Build program on-going operating model with delivery model, roles and responsibilities, oversight and governance, platform delivery, contracts/procurement									
2.2 Build institutional supports through a steward tool kit and open data training									
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3. Ignite Interest									
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3.3 Deliver value through open data with case studies that have visible impacts to departments or other constituencies									

Detailed Workplan

Metrics to Indicate Program Progress Against Strategy

In order to track progress against our goals, we have identified a set of 15 possible metrics for measurement.

Scale

1. % increase in number of available data sets (Goal: 100%)
2. % of Departments represented in open data (Goal: 75%)
3. % of already available web data pulled into open data (100%)
4. % of data published as a result of public request (Goal: 5%)
5. % of departments who have built data inventories (Goal: 20%)
6. % of data sets that are updated automatically (Goal: 75%)

Sustain

1. % of departments with a designated data steward (75%)
2. % of data stewards trained on open data policy (100%)
3. Development of the operating model (indicator)
4. Policy finalized and published (indicator)
5. Communications plan developed (indicator)

Ignite

1. % increase in open data site visits (Goal 15%)
2. % increase in public requests for data sets (Goal: 40%)
3. # of business cases developed using shared or open data (Goal: 2)
4. #/$/% costs or efficiency savings as a result of open data (Goal: 15% for 1-2 different work areas)

Risks and Gaps

Key Risks and Gaps

Engagement of various constituencies revealed the following gaps and risks in implementing the strategy. The team has also identified some mitigation or remediation activities.

Resourcing

Level of effort for the dashboard team's first iteration has been high and likely unsustainable. Resourcing from departments that own the metrics are also scarce. Resourcing is also needed for open data.

- Mitigation/Remediation: revise operating approach, use guiding principals to determine more manageable metrics, use organic growth and support, automate metrics where possible, enable department self service

Hooks

To date data sets made available are a result of good faith effort. To be sustainable the strategy needs a hook in policy to provide the stick around open data, not just the carrot.

- Mitigation/Remediation: Finalize draft policy approved by city legal. Communicate policy to city, and communicate Data Steward responsibilities to department staff

Change

This is very different than the ways in which much of the city operates today. Resistance to change creates a program risk,

- Mitigation/Remediation: pilot and show progress through small experiments with coalitions of the willing, enable departments that are willing and interested with high quality support and value delivery, to demonstrate a well functioning model and engage the "wait and see" stakeholders

Process Driven versus Organic Growth

A well structure programmatic approach can mean that we have a full scale viable program, it also requires significant effort and acceptance from departments. Opportunistic acquisition of data sets helps with the short term but doesn't support sustainable program development.

- Mitigation/Remediation: Deploy a multi-pronged approach to socialization and data set acquisition, working programmatically with each department and also opportunistically with data sets.

Key Risks and Gaps (Cont'd)

Understanding Strategy to Deal with Sensitive Data

Many departments fear that open data requires them to open sensitive information to the public.

- Mitigation/Remediation: Communicate that open data regards information that can and should be open, and does not seek to information that is controlled, protected or sensitive. Clarify this point through the policy roadshow.

Data Ownership/Order of Operations

Some departments would like first dibs on data, analysing it prior to public release possibly impacting the timing or availability of data.

- Mitigation/Remediation: Build in questions around release timing into inventorying process.

Misinterpretation of Data by Non-Experts

Departments have concerns that opening data will create churn and extra work because residents will analyse and misinterpret information the find on the open data portal.

- Mitigation/Remediation: There is a risk that the public can misinterpret any information we communicate and open data is no different. There are 2 ways to remediate this 1) provide appropriate context in the information associated with the data set, 2) continue to acclimate the public to the use of open data.

Value/ROI Equation

Departments are strapped for time and don't perceive that the benefits of open data outweigh the costs in terms of efforts and risks in terms of churn.

- Mitigation/Remediation: Develop communications about the value of open data including: transparency, accountability, improved constituent engagement, movement towards an improved city-wide data environment, and an improved analytic capabilities.